Published 1972

Museum and Archives Notes No. 13

A DUCK-BILLED DINOSAUR

LAMBEOSAURUS

PROVINCIAL MUSEUM & ARCHIVES OF ALBERTA, 12845 - 102 AVENUE, EDMONTON, ALBERTA, CANADA

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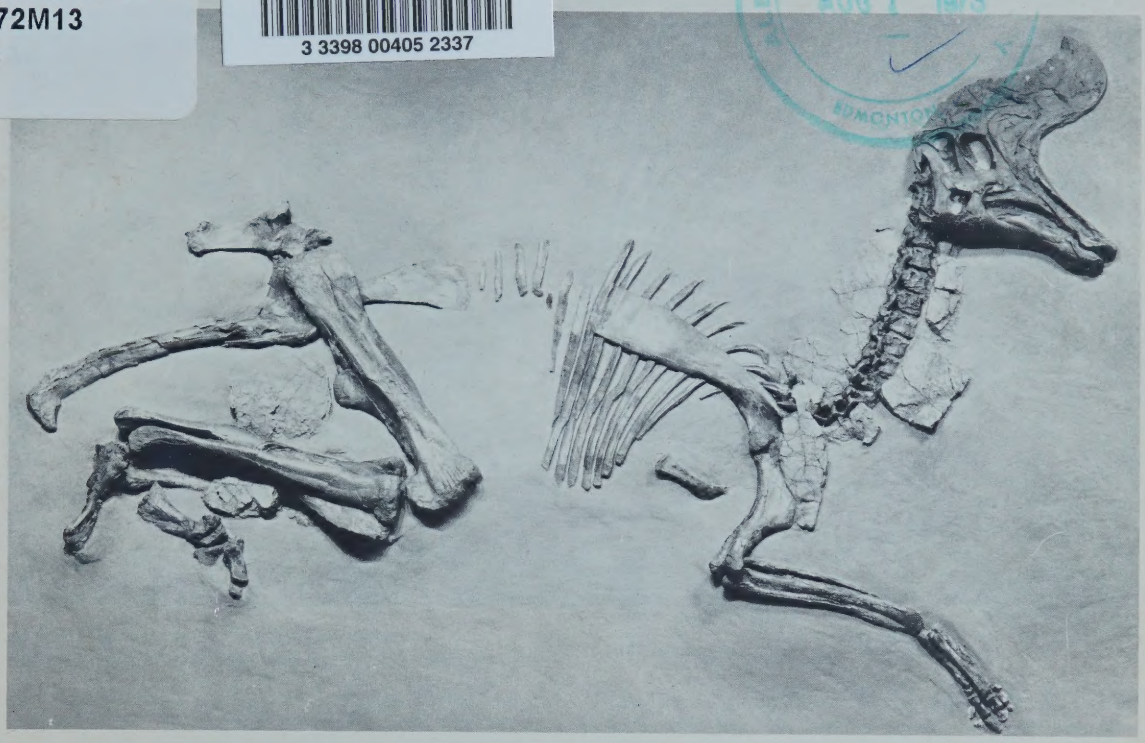


Lambeosaurus magnicristatus as seen in the exhibit galleries

Introduction

The incomplete skeleton of the duck-billed dinosaur *Lambeosaurus magnicristatus*, on display in the Provincial Museum and Archives of Alberta, was collected by C. M. Sternberg in 1937, about 7 miles southeast of Manyberries, Alberta. The specimen was found approximately 25 feet beneath the upper contact of the Oldman Formation, which is also the dinosaur-bearing formation so spectacularly exposed in Dinosaur Provincial Park. Oldman beds, somewhat older than the Edmonton Formation of the Drumheller region, have been the source of over 100 major dinosaur finds.

Although the skeleton of *Lambeosaurus* was originally collected for the National Museums of Canada, that institution generously released the specimen early in 1966 to the PMAA, on a "Permanent Loan" basis, for inclusion in the new PMAA's exhibit galleries. The dinosaur skeleton was then still wrapped in Sternberg's original plaster-and-burlap collecting jackets, and was in the same boxes in which it had originally been shipped to the National Museums.

Dinosaur at the original site

Courtesy National Museums of Canada reproduced by permission of Information Canada

John Poikans prepared the specimen for display once it had been shipped to the PMAA. *Lambeosaurus* went on display in the PMAA in mid-1969.

The Dinosaur

Lambeosaurus is a genus of large, crested duck-billed dinosaurs. A plant-eater in life, *Lambeosaurus* would have waded or swum in ponds and swamps; or would have walked on its hind feet on land. Since the duck-billed dinosaurs, also called hadrosaurs, lived close to water, a comparatively large number of them were buried in the sands, silts, and muds that were carried by streams flowing eastward from the rising Rocky Mountains. Thus the duck-billed dinosaurs are a relatively well-known group, although dinosaur skeletons are very rare.

Many speculations have been made about the function of the crests of hadrosaurs. The crests of *Lambeosaurus* and its relatives are hollow, and contain folded passages and chambers. These have been interpreted as sounding chambers, air storage chambers, and air traps to prevent water from entering the lungs when the dinosaur's head was submerged. J. H. Ostrom and many other dinosaur experts now think that the passages were lined with membranes that improved the sense of smell.

Skin impressions

This specimen of *Lambeosaurus* shows a large section of skin impressions around the neck, forelimb and hind limb. The skin was covered with scales which did not overlap as they do in snakes

and lizards, but were crowded together. Duck-billed dinosaurs did not have defensive armor of the sort found in *Stegosaurus* or the armored dinosaurs.

Collecting the Specimen

In an accompanying photograph, the skeleton is shown as it was exposed by Dr. Sternberg in 1937. The left side was upward, and many parts of the skeleton had been badly eroded, especially the pelvis and vertebrae of the back and tail. Parts of one forefoot and the hind and forelimbs, both shoulder blades, ribs, neck vertebrae, and the skull were well preserved, as was a large section of skin impressions from the right side.

The skeleton, as Sternberg observed in his field notes, "probably has been weathering for over a hundred years," and he immediately saw that it would not have been possible to make a free standing mount from it. Again from his field notes, "This specimen is suitable only for a panel mount with right side showing so I have put a layer of grey plaster on the weathered bones of the left side to give better backing for the mount. This plaster should hold the ribs, pelvic arch, and hind limbs in place . . . . The neck and forelimbs are not so treated." After this reinforcement was applied, he put a plaster-and-burlap jacket on the specimen, separated it into five blocks so it could be handled properly, packed it into straw-filled wooden boxes, and shipped it to Ottawa.

Preparing the Specimen

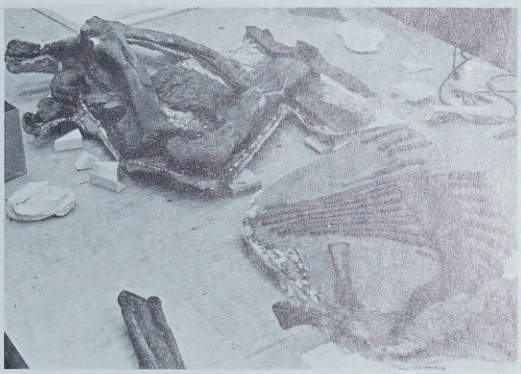
In the laboratory, each plaster jacket was opened from its original underside, and the rock painstakingly removed from the bones. Small chisels were used to chip the rock away, then a fine brush was used to clear dust and rock chips from the specimen. Preservatives were applied to the bone as it was exposed, and special care was taken to preserve the skin impressions when possible.

A compromise had to be made between displaying skin impressions and bone. In parts of the neck, impressions were carefully removed to reveal the excellent vertebrae. These skin impressions were preserved intact, and are kept in the paleontology collection for scientific study. A large area of skin impressions, however, was mounted with the skeleton, and gives the viewer a good idea of the skin of duck-billed dinosaurs.

Mounting the Specimen

Mounting a skeleton for display is as difficult a task as exposing the bones, and no two specimens can be mounted in exactly the same way. To mount this skeleton of *Lambeosaurus*, a large wooden framework was built, and a piece of plywood placed over it. Then the prepared sections of the skeleton were bolted into place, with blocks of wood under

Chipping and brushing away rock



Attaching sections to framework

Shellacking styrofoam supports

them for support. Styrofoam blocks were cut to hold the forefoot and skull in position, and then were shellacked.

With the entire skeleton assembled, a steel mesh network was stretched over the background area, and a layer of plaster applied to the mesh. Sand from the site made up the final coating. The mount was then ready to be positioned.

Plastering background

The display technique used for the skeleton of *Lambeosaurus magnicristatus* gives the best possible display of both the bones and the skin impressions. The mount is light in weight and is mobile, so it can be moved easily to another position, and need not be suported by a wall. Moreover, it would not be difficult to change if it were necessary to display the specimen differently.

Skull of Lambeosaurus magnicristatus

Further Reading:

Colbert, E. H. (1961)

Dinosaurs, Their Discovery and their World.

E. P. Dutton & Co., Inc., New York. xiv + 300 pp.

Ostrom, J. H. (1962)

The Cranial Crests of Hadrosaurian Dinosaurs.

Yale Peabody Museum of Natural History, Postilla, No. 62. 29 pp.

Written by:

J. E. Storer

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J. Keizer, S. R. Holloway,

Provincial Museum and Archives of Alberta.

L. S. WALL, QUEEN'S PRINTER FOR ALBERTA, 1972

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